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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,816	12/29/2000	Francis M.L. Ng	042390.P10363	8480

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EXAMINER

ARNOLD, ADAM

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 05/12/2004

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/751,816

Applicant(s)

NG, FRANCIS M.L.

Examiner

Adam Arnold

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The examiner acknowledges the receipt and entry of the applicant's amendment.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bajaj, U.S. Patent No. 6,438,266, in view of Shum, U.S. Patent No. 6,476,805. Referring to claim 1, Bajaj discloses a method comprising performing parameterization (col. 4, line 61) on 3D geometric graphic data (col. 4, line 48); performing scalar quantization on the graphic data (col. 17, lines 13-24); generating coded and compressed (col. 3, line 55) 3D geometric graphical data; where the 3D model data is surface normal vectors (col. 15, lines 39-42). Baja does not explicitly disclose encoding the graphic data differentially. Shum discloses using differential encoding (col. 25, line 59-65). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to encode the 3D geometric graphic data differentially. One of ordinary skill in the art would have been motivated to do this because differential encoding is a standard practice within graphics image encoding schemes to further compress a graphics image and it would be a process of replacing the generic coding of Bajaj with the more specific (as well as conventional) coding of Shum.

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Referring to claim 2, Bajaj further discloses where the 3D geometric graphic data includes normalized normal vectors (col. 11, lines 1-2).

Referring to claim 3, Bajaj further discloses mapping the normal vectors into spherical coordinates (col. 17, lines 3-12).

Referring to claim 4, Bajaj further discloses where the scalar quantization comprises generating actual quantized spherical coordinate values (col. 17, lines 12-15).

Referring to claim 5, Bajaj further discloses generating predicted quantized spherical coordinate values from an actual value (col. 18, lines 45-49) and generating error values by subtracting predicted quantized values from actual values (col. 17, lines 30-33).

Referring to claim 6, Bajaj further discloses using entropy encoding for encoding error values (col. 11, lines 30-39).

Referring to claim 7, Bajaj further discloses using MPEG4 3D (col. 14, line 31).

Referring to claim 8, the remarks presented above with respect to claim 1 apply equally to this claim.

Referring to claim 9, the remarks presented above with respect to claim 2 apply equally to this claim.

Referring to claim 10, the remarks presented above with respect to claim 3 apply equally to this claim.

Referring to claim 11, the remarks presented above with respect to claim 4 apply equally to this claim.

Referring to claim 12, the remarks presented above with respect to claim 5 apply equally to this claim.

Referring to claim 13, the remarks presented above with respect to claim 6 apply equally to this claim.

Referring to claim 14, the remarks presented above with respect to claim 7 apply equally to this claim.

Referring to claim 15, Bajaj further discloses a computer system with instructions (col. 6, lines 31-40). The remarks presented above with respect to claim 1 apply equally to the remainder of this claim.

Referring to claim 16, the remarks presented above with respect to claim 2 apply equally to this claim.

Referring to claim 17, the remarks presented above with respect to claim 3 apply equally to this claim.

Referring to claim 18, the remarks presented above with respect to claim 4 apply equally to this claim.

Referring to claim 19, the remarks presented above with respect to claim 5 apply equally to this claim.

Referring to claim 20, the remarks presented above with respect to claim 6 apply equally to this claim.

Referring to claim 21, the remarks presented above with respect to claim 7 apply equally to this claim.

Referring to claim 22, the remarks presented above with respect to claims 1, 5, 6 and 15 apply equally to this claim.

Referring to claim 23, the remarks presented above with respect to claim 2 apply equally to this claim.

Referring to claim 24, the remarks presented above with respect to claims 3 and 4 apply equally to this claim.

Referring to claim 25, the remarks presented above with respect to claim 5 apply equally to this claim.

Referring to claim 26, the remarks presented above with respect to claim 5 apply equally to this claim.

Referring to claim 27, the remarks presented above with respect to claim 6 apply equally to this claim.

Referring to claim 28, the remarks presented above with respect to claim 7 apply equally to this claim.

3. Claims 29-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bajaj.

Referring to claim 29, Bajaj discloses generating actual quantized spherical coordinate values by adding error values to predicted quantized values (col. 18, lines 62-64) and generating decompressed 3D graphics data from the coordinate values (col. 4, line 53), where the 3D model data is surface normal vectors (col. 15, lines 39-42). Bajaj does not explicitly disclose deparameterization or dequantization. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to decode by deparameterization and dequantization the encoded data. One of ordinary skill in the art would have been motivated to do this because any data that has been encoded must be decoded to be of any use. In this application, the decoding steps are simply the encoding steps in reverse.

Referring to claim 30, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 31, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 32, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 33, the remarks presented above with respect to claim 7 apply equally to this claim.

Referring to claim 34, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 35, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 36, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 37, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 38, the remarks presented above with respect to claim 7 apply equally to this claim.

Referring to claim 39, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 40, the remarks presented above with respect to claim 29 apply equally to this claim.

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Referring to claim 41, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 42, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 43, the remarks presented above with respect to claim 7 apply equally to this claim.

Referring to claim 44, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 45, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 46, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 47, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 48, the remarks presented above with respect to claim 29 apply equally to this claim.

Referring to claim 49, the remarks presented above with respect to claim 29 apply equally to this claim.

Response to Arguments

Applicant's arguments filed December 23, 2003 have been fully considered but they are not persuasive. In response to applicant's argument (page 10) that there is no motivation to

combine the Bajaj and Shum references, the examiner disagrees. The ultimate purpose of both inventions is to efficiently manipulate and transmit graphic images by means of encoding (col. 2, line 30 of Shum and col. 1, line 13 of Bajaj). Contrary to the assertion made by the applicant, at col. 15, lines 39-42, Bajaj discloses where the geometric data includes surface normal vectors. The remainder of the applicant's arguments reiterates the same points.

The rejections to these claims stand.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Adam Arnold** whose telephone number is **703-305-8413**. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.


Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).


MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600